

DOCKET NO: 218360US0

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF :  
HIROMI NAMBU, ET AL. : EXAMINER: FUBARA, BLESSING M.  
SERIAL NO: 10/053,658 :  
FILED: JANUARY 24, 2002 : GROUP ART UNIT: 1618  
FOR: DEPILATORY COMPOSITION :

AMENDMENT UNDER 37 C.F.R. § 41.37

COMMISSIONER FOR PATENTS  
ALEXANDRIA, VIRGINIA 22313

SIR:

Responsive to the Office Action of July 3, 2007, and further to the Notice of Appeal filed on December 3, 2007, Appellants request review of the rejections in the above-identified application by the Board of Patent Appeals and Interferences.

I. REAL PARTY IN INTEREST

The real party in interest is Kao Corporation of Tokyo, Japan.

II. RELATED APPEALS AND INTERFERENCES

None.

### III. STATUS OF THE CLAIMS

Claims 1, 3-5, 7-8, 10-22, 30-36, and 41-42 are pending in the application. The rejection of Claims 1, 3-5, 7-8, 10-22, 30-36, and 41-42 is appealed.

### IV. STATUS OF THE AMENDMENTS

The amendment of March 30, 2007 was entered and considered. No Amendment under 37 C.F.R. §1.116 was filed subsequent to the filing of the March 30, 2007 Amendment.

### V. SUMMARY OF THE CLAIMED SUBJECT MATTER

Independent Claim 1 is drawn to a depilatory gel sheet. The depilatory gel sheet comprises a support and a gel depilatory composition. The gel depilatory composition comprises a keratin reducing compound, a hydrophilic polymeric compound having an ionic group, an ionic-bonding crosslinking agent, and water. The gel depilatory composition has a viscosity of 500,000-20,000,000 mPa·s. The hydrophilic polymeric compound is crosslinked with the ionic-bonding crosslinking agent (see Claim 1; page 3, lines 8-13; page 27, last line - page 28, line 10; and page 3, lines 17-21). The keratin reducing compound is described in the paragraph bridging pages 4 and 5. The hydrophilic polymeric compound is described on page 7, lines 2-5+. The ionic-bonding crosslinking agent is described on page 11, lines 20-26. The support of the depilatory gel sheet is described in the paragraph bridging pages 23 and 24.

Dependent Claim 3 requires the inclusion of a non-ionic hydrophilic high molecular compound described on page 10, line 22 - page 11, line 22. Dependent Claim 4 requires the

inclusion of water insoluble particles described on page 13, second to the last line through page 19, line 21. Dependent Claim 8 requires the inclusion of a compound having particular solubility parameters described on page 19, line 22 - page 21, line 8.

Claim 20 is drawn to a method that includes applying the depilatory gel sheet to a portion of a body in need of depilation and peeling off the depilatory gel sheet to remove hairs from the body (see page 30, line 18-page 32, line 3).

Dependent Claim 30 is drawn to a method that includes applying the depilatory gel sheet to a portion of a body in need of depilation, and removing the depilatory gel sheet without drying the gel depilatory composition of the depilatory gel sheet (page 3, lines 13-14; page 23, last paragraph; and page 25, lines 1 and 7). Independent Claim 35 is drawn to a method that consists of applying the depilatory gel sheet to a portion of a body in need of depilation and peeling off the depilatory gel sheet to remove hairs from the body.

Independent Claim 36 is drawn to a method that consists of applying the depilatory gel sheet of the invention to a portion of a body in need of depilation; warming the depilatory gel sheet to swell and warm hairs present on the body; peeling off the depilatory gel sheet to remove hairs from the body.

## VI. GROUNDS OF REJECTION

- I. Claims 1, 3-5, 7-8, 10-22, 30-36, and 41-42 are rejected under 35 U.S.C. § 112, first paragraph as failing to comply with the written description requirement. The Office asserts that the original specification does not describe a gel depilatory composition having a viscosity in the range 500,000-20,000,000 mPa·s.

- II. Claims 1, 3-5, 7-8, 10-22, 30-36, and 41-42 are rejected as obvious under the meaning 35 U.S.C. § 103(a) over Hori (U.S. 4,830,633). In the July 3, 2007 Office Action the Office provides its rationale for asserting that a gel depilatory composition having the viscosity properties recited in the present claims is disclosed in Hori on page 4, lines 13-14 and the paragraph bridging pages 5 and 6.

## VII. ARGUMENT

- I. The original specification describes ranges of viscosity for the gel depilatory composition such that one of ordinary skill in the art could conclude that Appellants had possession of the claimed invention at the time the application was filed.

The specification discloses the following on page 27, last line through page 28, line 7:

The viscosity of the gel depilatory composition of the present invention, namely the value measured according to the following method is preferably 100,000 mPa·s or more, more preferably 300,000 mPa·s or more and particularly preferably 500,000 mPa·s or more. The upper limit of the viscosity is preferably 20,000,000 mPa·s or less, more preferably 15,000,000 mPa·s or less and particularly preferably 10,000,000 mPa·s or less.

Appellants submit that the original specification explicitly describes a gel depilatory composition having a viscosity of 500,000 mPa·s or more and 20,000,000 mPa·s or less. Thus, the specification describes a gel depilatory composition having a viscosity in the range of 500,000 to 20,000,000 mPa·s and the rejection should be reversed.

- II. The prior art relied on by the Office (i.e., Hori) does not disclose or suggest a gel depilatory composition having a viscosity of 500,000-20,000,000 mPa·s.

On page 5, lines 19-22 the Office acknowledges that Hori does not disclose a gel depilatory composition having a viscosity of 500,000-20,000,000 mPa·s:

Hori differs from the instant claim in the viscosity of the Hori gel is from 0.1 to 1,000 poise at 30°C (column 2, line 53), which is from 10 mPa·s to 100,000 mPa·s or a preferred viscosity of 0.2 to 100 poise (20 mPa·s to 10,000 mPa·s), while the claimed viscosity is 300,000 mPa·s [*sic* - 500,000 mPa·s].

The Office admits that Hori does not disclose at least one limitation of the presently claimed invention; namely, the requirement that the gel depilatory composition have a viscosity of 500,000-20,000,000 mPa·s.

The Office rationalizes the rejection of the present claims as obvious over Hori for the reason set forth on page 5, last line - page 6, line 16 of the July 3, 2007 Office Action:

...Hori contemplates a 10,000 fold increase from going from 10 mPa·s to 100,000 mPa·s or 500 fold increase from going from 20 mPa·s to 10,000 mPa·s for the preferred range. Further, the claimed viscosity is three times the viscosity of the Hori gel at the upper end. Gleaning from the Applicants' specification, a range of viscosity from 100,000 to 20,000,000 mPa·s (pg. 7, right col., lines 4 and 5 of the published application) is contemplated, which is a 200 fold from going from 100,000 to 20,000 mPa·s.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the gel formation of Hori, having a viscosity in the range of 10 mPa·s to 100,000 mPa·s in the method of Hori to remove hair. One having ordinary skill in the art would have been motivated to use a gel formulation to remove hair where the gel composition has a viscosity that is 10,000 or 500 fold the viscosity of the Hori gel at about between 100,000 and 1,000,000,000 mPa·s or 10,000 to 5,000,000 preferred, the expectation that the gel would effectively remove hair. The upper limits of the general range and the preferred range are

greater than the recited 500,000 mPa·s as in claim 1 and 5,000,000 lies within the range recited in claim 1. In the absence of factual evidence, a gel having a viscosity of 500,000 mPa·s is not inventive over a gel having a viscosity of 100,000 mPa·s and which may be increased 500 or 10,000 fold.

Appellants submit that the Office's above-quoted rationale for asserting that the gel depilatory composition of the present claims (i.e., one having a viscosity of 500,000-20,000,000 mPa·s) is obvious over the composition of Hori (i.e., one having a viscosity of 10-100,000 mPa·s) is incomprehensible.

It appears that the Office is asserting that the ratio of the maximum and minimum viscosities disclosed in Hori (i.e., a ratio that corresponds to the 10,000 fold increase described in the last line on page 5 of the July 3, Office Action) can be used as a multiplicative factor to expand the viscosity ranges disclosed in Hori. Appellants are aware of no legal or technical theory that would support such a rationale.

With respect to the description of the viscosity of the prior art composition, Hori leaves no room for debate (see col. 2, lines 33-55 of Hori):

The depilatory agent...is designed such that the viscosity is 0.1 to 1,000 poises (at 30°C) and preferably 0.2 to 100 poises (at 30°C).

Hori discloses that the maximum viscosity of the prior art composition is 100 poises.

Appellants submit that it is readily evident to those of skill in the art that one poise is 100 mPa·s. Thus, Hori discloses that the maximum viscosity of the prior art composition is 100,000 mPa·s. The Office provided no understandable rationale to explain why one of ordinary skill in the art would modify the viscosity range of Hori in a manner such that the viscosity is at least 500,000 mPa·s, i.e., 400% greater than the maximum viscosity disclosed in the Hori reference.

Appellants submit that the Office has not established a *prima facie* case of obviousness with respect to the presently claimed subject matter at least because the Office failed to provide any basis from which to assert that a gel depilatory composition having a viscosity of 500,000-20,000,000 mPa·s is disclosed or suggested in Hori. Appellants request that the rejection be reversed and the claims allowed.

Even if the Office established a *prima facie* case of obviousness, which is not the case, Appellants' data submitted in support of patentability would rebut an assertion of obviousness. The Declaration under 37 C.F.R. § 1.132 of Dr. Yoshihiko Watanabe provides information showing that a depilatory gel sheet having a gel depilatory composition having a viscosity within the range 500,000-20,000,000 mPa·s is able to stick to the skin of a user whereas a compositions (i.e., a polymer solution) having a viscosity of only 155,000 mPa·s has a tendency to flow and cannot be effectively maintained on skin. See the Declaration of Dr. Yoshihiko Watanabe provided in Appendix IX of the present Appeal Brief.

The data of Dr. Watanabe's Declaration (i.e., the photographs attached therewith) demonstrate the criticality of using a gel depilatory composition having a viscosity of 500,000-20,000,000 mPa·s in the gel depilatory sheet of the claimed invention. The Declaration of Dr. Watanabe compares the flow properties of a polymer solution having a viscosity less than the minimum 500,000 mPa·s of the gel depilatory composition of the claimed invention (i.e., a polymer solution having a viscosity of 155,000 mPa·s) with the gel depilatory composition of the claimed invention. The depilatory gel sheet of the claimed invention adheres to skin when the gel depilatory composition has a viscosity within the range recited in the present claims. In contrast a polymer solution having a viscosity of

155,000 mPa·s has flow properties that render the polymer composition unfit for use in a depilatory gel sheet.

Thus, even if the Office had established a *prima facie* case of obviousness, which the Office has not, Dr. Watanabe's Declaration rebuts any such assertion.

The rejection of the present claims as obvious over Hori is therefore not supportable and the rejection should be reversed.

For the reasons stated above, Appellants urge the Board to overturn the rejections under 35 U.S.C. § 112, first paragraph and 35 U.S.C. § 103(a).

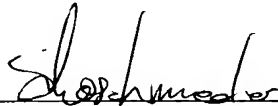
Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,  
MAIER & NEUSTADT, P.C.  
Norman F. Oblon

Customer Number  
**22850**

Tel: (703) 413-3000  
Fax: (703) 413 -2220  
(OSMMN 08/03)

NFO/SUK:sjh

  
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Stefan U. Koschmieder  
Registration No. 50,238



### VIII. CLAIMS APPENDIX

Claim 1: A depilatory gel sheet comprising a support and a gel depilatory composition wherein the gel depilatory composition is present in the support, on the support or both in and on the support, and

wherein the gel depilatory composition comprises (a) a keratin reducing compound, (b) a hydrophilic polymeric compound having an ionic group, (c) an ionic-bonding crosslinking agent and (d) water, and has a viscosity of from 500,000 mPa·s to 20,000,000 mPa·s, and

wherein the hydrophilic polymeric compound is crosslinked with the ionic-bonding crosslinking agent.

Claim 3: The depilatory gel sheet according to claim 1, wherein the gel depilatory composition further comprises (e) a nonionic hydrophilic high molecular compound.

Claim 4: The depilatory gel sheet according to claim 1, wherein the gel depilatory composition further comprises (f) water-insoluble particles.

Claim 5: The depilatory gel sheet according to claim 1, wherein (b) the hydrophilic polymeric compound having an ionic group is at least one selected from the group consisting of a poly(meth)acrylic acid and a salt thereof and (c) the ionic-bonding crosslinking agent is at least one selected from the group consisting of a polyvalent metal salt, a polyvalent metal hydroxide and a polyvalent metal oxide.

Claim 7: The depilatory gel sheet according to claim 1, wherein (b) the hydrophilic polymeric compound having an ionic group is a water-absorptive polymeric compound or a water-soluble polymeric compound.

Claim 8: The depilatory gel sheet according to claim 1, wherein the gel depilatory composition further comprises (g) a compound having the solubility parameter  $\delta$  represented by the formula (I) in the range of 8 to 15:

$$\delta = (\Delta E / V)^{1/2} = (\sum_i \Delta e_i / \sum_i \Delta v_i)^{1/2} \quad (I)$$

where;

$\Delta E$ : Cohesive energy density (cal/mol),

$V$ : Molar volume ( $10^{-6}$  m<sup>3</sup>/mol),

$\Delta e_i$ : Evaporation energy of an atom or an atomic group, and

$\Delta v_i$ : Molar volume of an atom or an atomic group.

Claim 10: The depilatory gel sheet according to Claim 1, wherein the keratin reducing compound is a thioglycolic acid, cysteine, or a salt thereof.

Claim 11: The depilatory gel sheet according to Claim 1, wherein the keratin reducing compound comprises at least one selected from the group consisting of monoglyceryl thioglycolate, thioglycolic acid and calcium thioglycolate.

Claim 12: The depilatory gel sheet according to Claim 1, wherein the keratin reducing compound is present in an amount of from 1 to 20% by weight.

Claim 13: The depilatory gel sheet according to Claim 1, wherein the hydrophilic polymeric compound is present in an amount of from 5 to 20% by weight.

Claim 14: The depilatory gel sheet according to Claim 1, wherein the hydrophilic polymeric compound is a polyvinyl alcohol or a poly(meth)acrylic acid.

Claim 15: The depilatory gel sheet according to Claim 1, wherein the hydrophilic polymeric compound is at least one of an (meth)acrylic acid/(meth)acrylate copolymer, an (meth)acrylic acid/maleic acid copolymer, a starch/(meth)acrylic acid graft copolymer or a salt thereof.

Claim 16: The depilatory gel sheet according to Claim 1, wherein the hydrophilic polymeric compound is a sodium polyacrylate.

Claim 17: The depilatory gel sheet according to Claim 1, wherein the crosslinking agent is aluminum hydroxide or calcium hydroxide.

Claim 18: The depilatory gel sheet according to Claim 1, wherein the crosslinking agent is present in the gel depilatory composition in an amount of from 0.1 to 5% by weight.

Claim 19: The depilatory gel sheet according to Claim 1, wherein the crosslinking agent is present in the gel depilatory composition in an amount of 0.001 to 2 equivalents per ionic group of the hydrophilic polymeric compound.

Claim 20: A method comprising:

applying the depilatory gel sheet according to Claim 1 to a portion of a body in need of depilation and

peeling off the depilatory gel sheet to remove hairs from the body.

Claim 21: The method according to Claim 20, further comprising:

allowing the depilatory gel sheet to stand on the body for from 2 to 20 minutes after applying.

Claim 22: The method according to Claim 20, wherein the portion of the body is the face.

Claim 30: A method, comprising:

applying the depilatory gel sheet according to Claim 1 to a portion of a body in need of depilation, and

removing the depilatory gel sheet to remove hairs from the body without drying the gel depilatory composition.

Claim 31: The method according to Claim 30, wherein the depilatory gel sheet is removed after the hairs swell.

Claim 32: The method according to Claim 30, wherein the depilatory gel sheet is removed by washing.

Claim 33: The method according to Claim 30, wherein the removing includes peeling the depilatory gel sheet from the body.

Claim 34: The method according to Claim 30, wherein the depilatory gel sheet is removed while the gel depilatory composition comprises water.

Claim 35: A method, consisting of:

applying a depilatory gel sheet comprising a support and a gel depilatory composition to a portion of a body in need of depilation, and

peeling off the depilatory gel sheet to remove hairs from the body;

wherein the gel depilatory composition is present in the support, on the support or both in and on the support;

wherein the gel depilatory composition comprises (a) a keratin reducing compound, (b) a hydrophilic polymeric compound having an ionic group, (c) an ionic-bonding crosslinking agent and (d) water,

wherein the gel depilatory composition has a viscosity of from 500,000 mPa·s to 20,000,000 mPa·s, and

wherein the hydrophilic polymeric compound is crosslinked with the ionic-bonding crosslinking agent.

Claim 36: A method, consisting of:

applying a depilatory gel sheet comprising a support and a gel depilatory composition to a portion of a body in need of depilation,

warming the depilatory gel sheet to a temperature of from 40 to 50°C to swell and warm hairs present on the body and in contact with the depilatory gel sheet, and

peeling off the depilatory gel sheet to remove hairs from the body;

wherein the gel depilatory composition is present in the support, on the support or both in and on the support;

wherein the gel depilatory composition comprises (a) a keratin reducing compound, (b) a hydrophilic polymeric compound having an ionic group, (c) an ionic-bonding crosslinking agent and (d) water,

wherein the gel depilatory composition has a viscosity of from 500,000 mPa·s to 20,000,000 mPa·s, and

wherein the hydrophilic polymeric compound is crosslinked with the ionic-bonding crosslinking agent.

Claim 41: The depilatory gel sheet according to Claim 1, wherein the support is non-moisture-permeable.

Claim 42: The depilatory gel sheet according to Claim 1, wherein the support is sparingly moisture-permeable.

IX. EVIDENCE APPENDIX

Executed and unexecuted copies of Dr. Watanabe's Declaration under 37 C.F.R.  
§ 1.132 filed on March 3, 2007.

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Oblon

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花王(株) (花山)

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P. 3

DOCKET NO: 218360US0

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF

HIROMI NAMBU, ET AL

: EXAMINER: FUBARA, B. M.

SERIAL NO: 10/053,658

FILED: JANUARY 24, 2002

: GROUP ART UNIT: 1618

FOR: DEPILATORY COMPOSITION

DECLARATION UNDER 37 C.F.R. § 1.132

COMMISSIONER FOR PATENTS  
ALEXANDRIA, VIRGINIA 22313

Sir:

Now comes Mr. Yoshihiko Watanabe who deposes and states that:

1. I am an employee of Kao Corporation.
2. I am a graduate of University of Tokyo and received my doctor degree in the year 1994.
3. I have been employed by Kao Corporation since 1994, and I have been conducting research in the field of polymer material for 13 years.
4. I am familiar with the prosecution history of the above-identified application and I understand that it is the Examiner's opinion that a gel depilatory sheet containing a gel depilatory composition having a viscosity of from 300,000-20,000,000 mPa·s would be obvious in view of a gel depilatory sheet containing a gel depilatory composition having a viscosity of 100,000 mPa·s.
5. In order to show the effect of viscosity on a gel depilatory sheet the following experiments were carried out by me or under my direct supervision and control.



Application No. 10/053,658

Reply to Office Action of December 5, 2006

6. The photographs on the page titled "Comparison: Polymer solution of 155,000 mPa·s" show the viscosity characteristics of a polymer solution having a viscosity of 155,000 mPa·s. The photographs show that a polymer solution of viscosity 155,000 mPa·s is a flowable liquid that droops under its own weight. The series of three small photographs show how a polymer solution having a viscosity of 155,000 mPa·s flows down an inclined surface.

7. The photographs on the page titled "Depilatory Gel Sheet of the present invention" relate to a gel depilatory sheet meeting the requirements of the present claims; namely, containing a gel depilatory composition having a viscosity of from 500,000-20,000,000 mPa·s.

8. The gel depilatory sheet having a gel depilatory composition of viscosity 500,000-20,000,000 mPa·s was able to adhere to the skin of a user without drying and could be peeled off to remove hair.

9. Another photograph on the same page shows the sheet of the invention having a gel depilatory composition meeting the viscosity requirement of 500,000-20,000,000 mPa·s. The gel remains on the gel depilatory sheet and does not hang down or droop from the sheet.

10. The photographs shows that a gel depilatory sheet of the invention remained adhered to skin applied to different portions of a body.

11. It is my opinion that the viscosity of a gel depilatory composition present on a gel depilatory sheet has a significant impact upon the usefulness of the gel depilatory sheet. A gel depilatory composition having a viscosity of only 100,000 mPa·s has flow properties that render it substantially inferior to a gel depilatory sheet of the present claims.

12. The undersigned petitioner declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both.

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P. 5

Application No. 10/053,658

Reply to Office Action of December 5, 2006

under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of this application or any patent issuing thereon.

13. Further deponent saith not.

渡辺 喜寿

Yoshitoko Watanabe

Customer Number

22850

Tel. (703) 413-3000

Fax. (703) 413-2220

(OSLO-EN 03/06)

March 28, 2007

Date

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花王(株) (和山)

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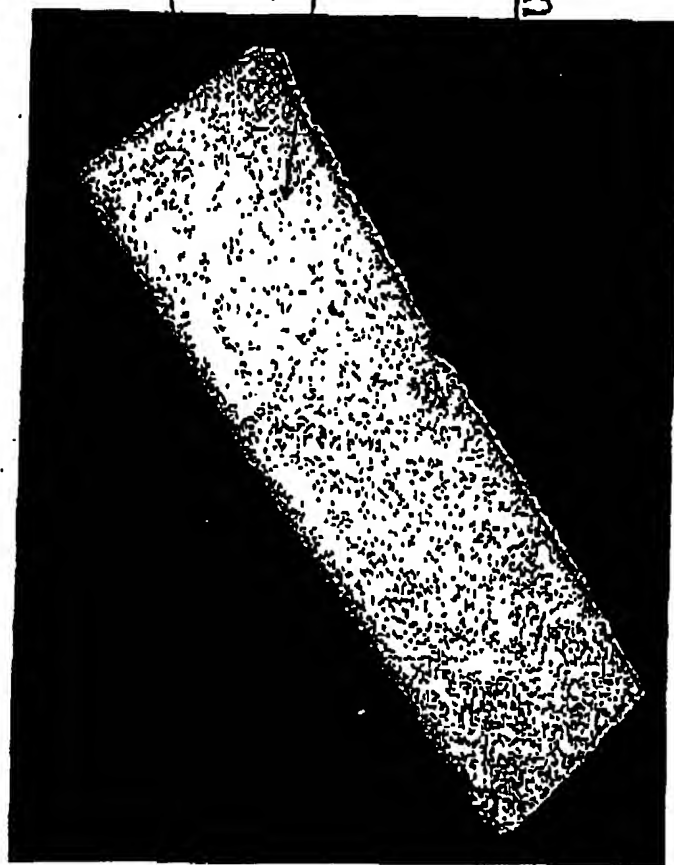
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P. 6

Depilatory Gel Sheet  
of the present invention

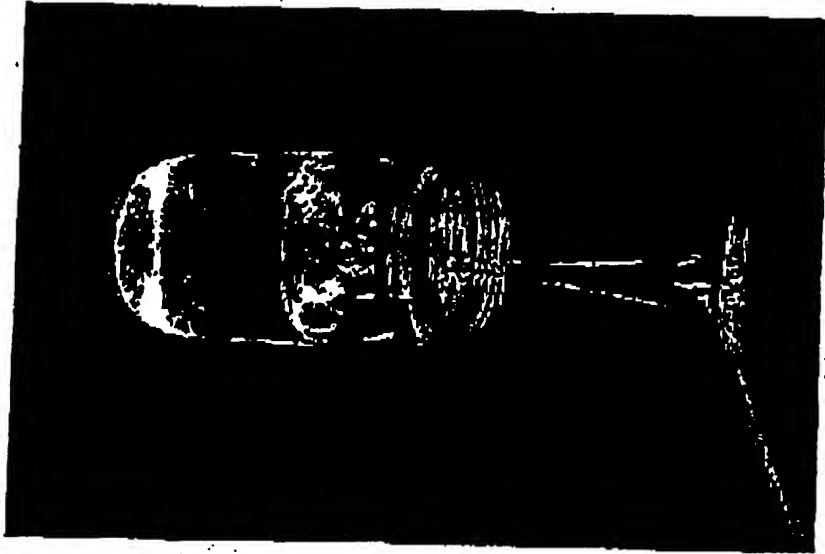
Gel

Nonwoven fabric



# Comparison:

Polymer solution of 155000 mPas



Polymer Solution of 155000 mPas  
is flowable.  
It droops under its own weight  
on declined place such as human body.



Polymer solution  
of 155000mPas  
placed on a board  
(time = 0 second)



5 seconds after  
declining the board



10 seconds after  
declining the board

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DECLARATION UNDER 37 C.F.R. § 1.132

COMMISSIONER FOR PATENTS  
ALEXANDRIA, VIRGINIA 22313  
Sir:

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5. In order to show the effect of viscosity on a gel depilatory sheet the following experiments were carried out by me or under my direct supervision and control.

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7. The photographs on the page titled "Depilatory Gel Sheet of the present invention" relate to a gel depilatory sheet meeting the requirements of the present claims; namely, containing a gel depilatory composition having a viscosity of from 500,000-20,000,000 mPa·s.

8. The gel depilatory sheet having a gel depilatory composition of viscosity 500,000-20,000,000 mPa·s was able to adhere to the skin of a user without drying and could be peeled off to remove hair.

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under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of this application or any patent issuing thereon.

13. Further deponent saith not.

Customer Number

**22850**

Tel. (703) 413-3000  
Fax. (703) 413-2220  
(OSMMN 05/06)

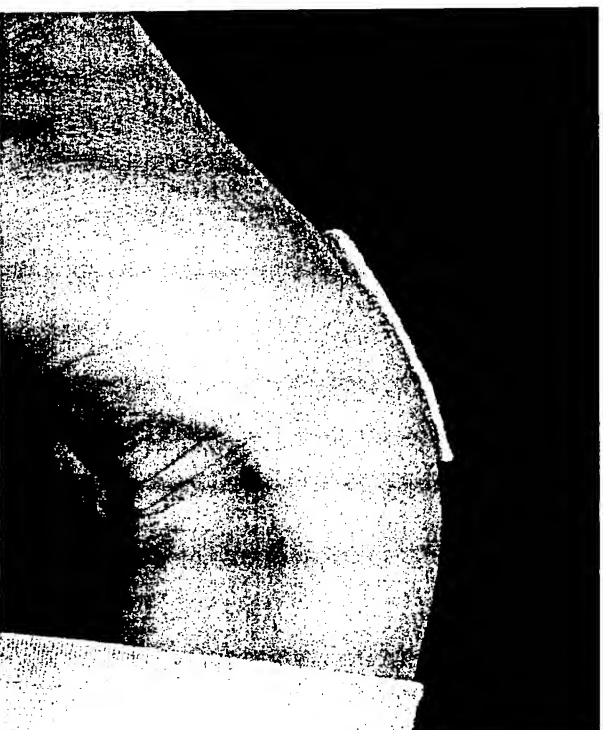
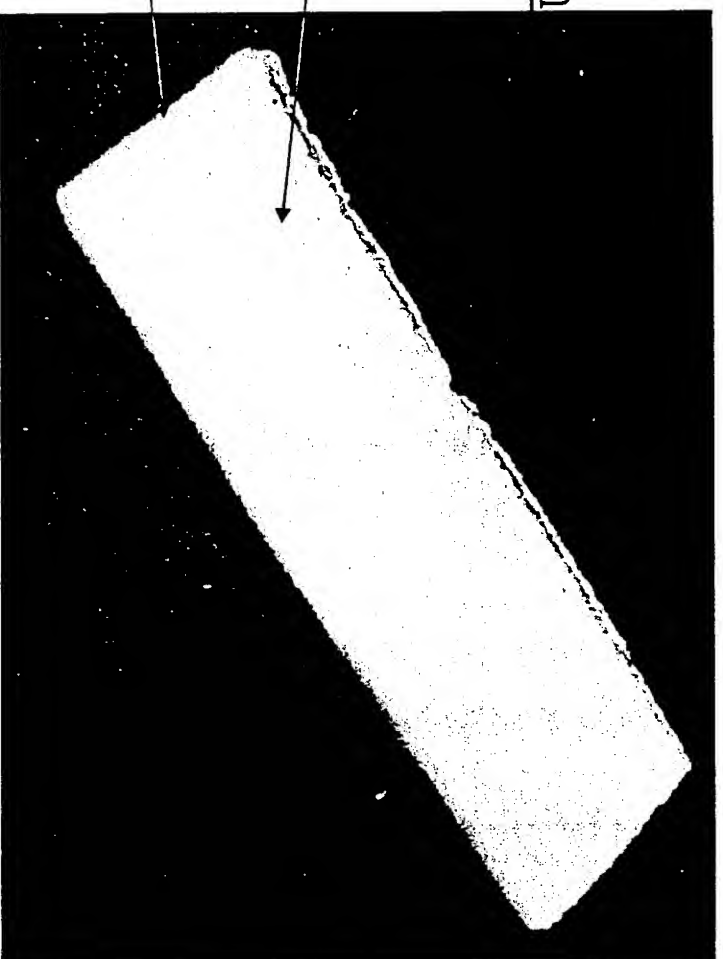
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Yoshihiko Watanabe

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Date

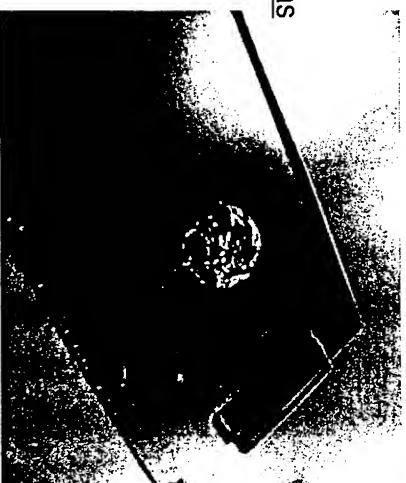
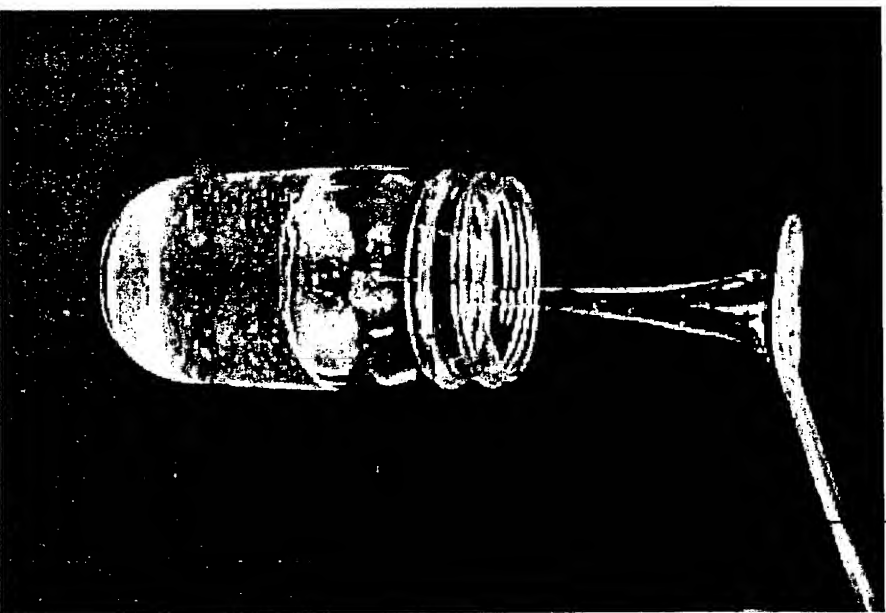
Depilatory Gel Sheet  
of the present invention





## Comparison:

Polymer solution of 155000 mPas



Polymer solution  
of 155000mPas  
placed on a board  
(time = 0 second)



5 seconds after  
declining the board



10 seconds after  
declining the board

Polymer Solution of 155000 mPas  
is flowable.  
It droops under its own weight  
on declined place such as human body.

X. RELATED PROCEEDINGS APPENDIX

None.